

Spokane Tribal Hatchery

Annual Report 2002



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SPOKANE TRIBAL HATCHERY



Annual Report January 1, 2002 - December 31, 2002

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EXECUTIVE SUMMARY

Due to the construction and operation of Grand Coulee Dam (1939), anadromous salmon have been blocked and resident fish populations permanently altered in the upper Columbia River region. Dam operations for hydroelectric, flood control or protection of threatened, listed &/or endangered species limits the ability of indigenous fish populations in the upper Columbia to sustain themselves for viable use.

The purpose of the Spokane Tribal Hatchery is to participate in a collaborative multi-agency artificial production program as a mitigation measure to restore and enhance kokanee salmon (*Oncorhynchus nerka*) and rainbow trout (*Oncorhynchus mykiss*) populations in Lake Roosevelt and Banks Lake (Grand Coulee Dam impoundments). The artificial production program consists of 3 other projects operated complementary of one another including the Sherman Creek Hatchery, Ford Trout Hatchery and the Lake Roosevelt Kokanee and Rainbow Trout Net Pen Rearing Projects.

Initial stocking from 1987 to 1994 focused on releasing up to 13-million kokanee fry (age 0+) and 500,000 rainbow trout yearlings (age 1+). However, 1989 to 1994 Lake Roosevelt fisheries monitoring and evaluation data indicated kokanee released as yearlings (age 1+) performed significantly better than fry releases. Accordingly, the hatcheries have since shifted to a yearling kokanee release program for Lake Roosevelt. The current stocking program plans for annual releases of 1,000,000 yearling kokanee and 500,000 yearling rainbow trout for Lake Roosevelt and 1.4 million kokanee fry/fingerlings (age 0+) for Banks Lake.

In 2002, the combined fish stocking of the hatcheries and net pen rearing projects included: 654,946 kokanee yearlings released into Lake Roosevelt; 1,456,520 kokanee fry/fingerlings released into Banks Lake, and; 501,662 rainbow trout yearlings released into Lake Roosevelt. Stock composition of 2002 releases consisted of 100 % Lake Whatcom kokanee and 80% diploid and 20% triploid/sterile Spokane Trout Hatchery (McCloud River) rainbow trout origin. The Colville Confederated Tribes in conjunction with Lake Roosevelt net pen rearing operations stocked an additional 115,224 triploid/sterile rainbow trout purchased from Troutlodge through a 2001 Emergency Trout Restoration grant. All kokanee were marked either with oxytetracycline or by fin clipping prior to release.

Kokanee and rainbow trout fingerlings transferred to Lake Roosevelt net pen rearing operations in the fall of 2002 for subsequent release as yearlings in 2003 consisted of 588,924 rainbow trout and 412,660 kokanee salmon. A total of 510,000 Lake Whatcom kokanee fingerlings were carried over at the Spokane Tribal Hatchery for stocking as yearlings in 2003.

Ongoing fishery investigations continue to indicate artificial production is beneficial to sustaining a viable fishery in Lake Roosevelt predominantly comprised of hatchery produced rainbow trout. Implications limiting the success of the kokanee program include high predation, entrainment and precocity rates. Recommendations for future hatchery operations include use of stocks compatible or native to the upper Columbia River and investigate hatchery practices to reduce precocity rates of kokanee. Depending on availability, additional stocks planned for future include Lake Roosevelt kokanee, Meadow Creek kokanee, Phalon Lake rainbow trout and 50% diploid/50% triploid Spokane Hatchery stocks. Thermal manipulation to reduce water temperature during egg incubation and fry/fingerling rearing is being tested on 2002 brood year kokanee.

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INTRODUCTION

The Spokane Tribal Hatchery (Galbraith Springs) project originated from the Northwest Power Planning Council (NPPC) 1987 Columbia Basin Fish and Wildlife Program. The *goal* of this project is to aid in the restoration and enhancement of the Lake Roosevelt and Banks Lake fisheries adversely affected by the construction and operation of Grand Coulee Dam. The *objective* is to produce kokanee salmon and rainbow trout for release into Lake Roosevelt for maintaining a viable fishery. The goal and objective of this project adheres to the NPPC Resident Fish Substitution Policy and specifically to the biological objectives addressed in the NPPC Columbia River Basin Fish and Wildlife Program to mitigate for hydropower related fish losses in the blocked area above Chief Joseph/Grand Coulee Dams.

PROJECT HISTORY

Various fisheries investigations from the 1940's to the early 1990's concluded reservoir operations effect on reproduction and early rearing habitat limited the ability of existing rainbow trout and kokanee salmon of producing a viable fishery while noting a substantial biological productivity base (primary and secondary) capable of supporting a large number adult fish (Gangmark and Fulton 1949, Nigro, 1981, Stober et al. 1982, Jagielo 1984, Scholz et al. 1986, Peone et al. 1990).

Continued fishery investigations in the 1980's indicated the use of artificial production as a viable way to restore and enhance kokanee salmon and rainbow trout in Lake Roosevelt and Banks Lake. Following recommendations in a feasibility study by Scholz et al. (1986), two hatcheries, a rainbow habitat improvement project and a program for monitoring and evaluating these measures was amended into the Northwest Power Planning Council 1987 Columbia Basin Fish and Wildlife Program. The measures for the hatcheries included one constructed in 1991 at Galbraith Springs on the Spokane Indian Reservation operated by the Spokane Tribe of Indians (Spokane Tribal Hatchery), and one constructed in 1992 at Sherman Creek (a northern tributary in Lake Roosevelt) operated by the Washington Department of Fish and Wildlife. Operation of the two hatcheries compliments each other. Kokanee eggs collected from Sherman Creek along with rainbow trout eggs received from state allotments are incubated at the Spokane Tribal Hatchery. Resulting progeny are reared at the Spokane Tribal Hatchery before release into Lake Roosevelt or transfer to either net pen rearing operations or the Sherman Creek Hatchery. Kokanee and rainbow fingerlings/yearlings are reared at these sites and also released into Lake Roosevelt after the spring drawdown period.

In the 1980's, volunteers from Lake Roosevelt initiated a successful rainbow trout net pen rearing program. Fingerlings reared at state and federal hatcheries were transferred to net pens in the fall and the volunteers reared the fish to the following spring before release. Prompted by excellent harvest returns and growth rates of net pen reared rainbow trout, as well as insufficient space at state and federal hatcheries, additional space was incorporated in the design of the kokanee hatcheries to rear 500,000 rainbow trout needed for the Lake Roosevelt net pen program.

The current stocking program established by fishery managers from the WDF&W, Colville Confederated Tribes and Spokane Tribe of Indians Consists of 1,000,000 yearling kokanee and 500,000 yearling rainbow trout for Lake Roosevelt and 1.4 million kokanee fry/fingerlings for Banks Lake.

METHODS

Multi-Agency Artificial Production Program

The Spokane Tribal Hatchery is one component of a multi-agency artificial production program for restoring and enhancing the Lake Roosevelt and Banks Lake kokanee and rainbow trout fishery. The other components include the Sherman Creek Hatchery, Ford Trout Hatchery and the Lake Roosevelt Kokanee and Rainbow Trout Net Pen Rearing Projects. Each project has its own production goal to collectively produce up to 1,000,000 kokanee yearlings, 1.4 million kokanee fry/fingerlings and 500,000 rainbow trout yearlings for annual stocking into Lake Roosevelt and Banks Lake. Fishery managers from the Washington Department of Fish and Wildlife, Spokane Tribe of Indians and Colville Confederated Tribes comprise the Lake Roosevelt Hatcheries Coordination Team responsible for directing hatchery and net pen rearing operations. Performance and evaluation of hatchery and net pen reared fish released into the project area and the impact on the biota is monitored and evaluated by the Lake Roosevelt and Banks Lake Fisheries Evaluation Programs.

Spokane Tribal Hatchery

Designed and constructed by the BPA, the Spokane Tribal Hatchery, is a state of the art facility with modern fish production equipment. The hatchery consists of 44 indoor/outdoor raceways with 26,752 cubic feet of rearing space, utilizes ground and surface water, incubates fish eggs using self fabricated upwelling units, employs sophisticated oxygenation system and uses modern fish handling and transportation equipment. The hatchery has a laboratory consisting of microscopes (phase contrast and dissecting), analytical balances and fish necropsy tools. The grounds surrounding the hatchery include a visitor's center, picnic and cultural interpretive center (under development). Detailed description of the Spokane Tribal Hatchery fish production methods can be found in the 2002 Annual Operating Plan and 2000 Hatchery and Genetic Management Plan for Lake Roosevelt artificial production.

Stocks Used

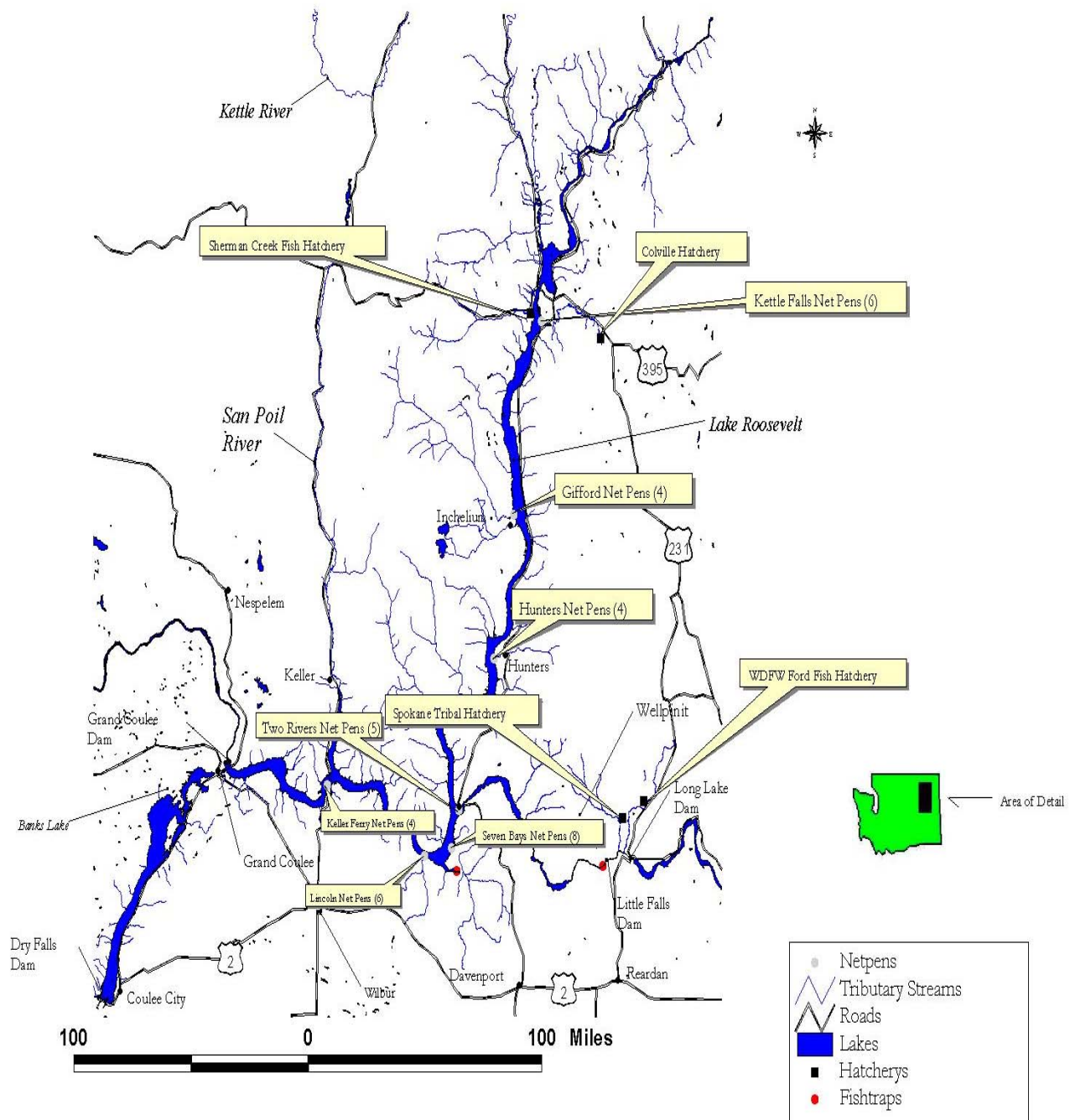
Actual production is subject to egg and stock availability. In 2002, stock composition consisted of Lake Whatcom kokanee, Spokane Trout Hatchery (McCloud River) rainbow trout and Trout Lodge rainbow trout stock. Eggs from Meadow Creek kokanee and Phalon Lake redband trout stocks were unavailable for use in 2002. All these stocks are identified in Hatchery and Genetic Management Plans for Lake Roosevelt artificial programs developed in 2000. Stock identification methods included marking hatchery kokanee with distinguishing fin clips, oxytetracycline marking and thermal otolith marking.

Operational Summary & Stocking Strategy

The Spokane Tribal Hatchery cultures kokanee and rainbow trout eggs allotted or obtained from Lake Roosevelt and rears resulting progeny through fry, fingerling and yearling stages for annual stocking, inter-program transfer and/or carry over. Stocking includes kokanee fry and yearling releases into Banks Lake and Lake Roosevelt. Inter-program transfers for subsequent stocking into Lake Roosevelt includes kokanee yearlings transferred to the Sherman Creek Hatchery, rainbow trout fingerlings transferred to the Sherman Creek Hatchery and kokanee and rainbow trout fingerlings transferred to Lake Roosevelt Net Pen Projects.

Description of Project Area

Lake Roosevelt is a mainstem Columbia River impoundment formed by Grand Coulee Dam in 1941. The reservoir, located in Northeast Washington, inundates 33,490 hectares at a full pool elevation of 393 m above sea level. Lake Roosevelt has a maximum width of 3.4 km, and maximum depth of 122 m (Stober et al. 1981). The map below illustrates the project area including sites of the hatcheries and net pen rearing projects.



RESULTS - 2002 Spokane Tribal Hatchery Operations

Listed below are the results of 2002 Spokane Tribal Hatchery Annual Operating Plan objectives and tasks implemented during this report period.

Fish stocks produced and listed in this report are classified by the following identification format:

Species: Stock: Brood Year: Brood Origin

Species - KO = kokanee, RB = rainbow trout

Stock - WHAL = Lake Whatcom, SPOK = Spokane Trout Hatchery (McCloud River), TROU = Troutlodge

Brood Year - 00 = 2000, 01=2001

Brood Origin - H = Hatchery, W = Wild

Objective: Egg Collection, spawning and incubation.

Task: Lake Roosevelt kokanee brood stock capture, holding and spawning.

Status: Adult kokanee collected from Lake Roosevelt in the fall of 2001 were predominantly precocious and eggs were not collected for 2002 production.

Task: Eyed-egg allotments, viral analysis, incubation/culturing.

Status: Completed.

Table 1 at the end of this section lists a summary of the 2002 incubation results.

KO:WHAL:01:H - (Lake Whatcom Brood Year 2001 Stock)

A total of 1,674,720 Lake Whatcom kokanee eggs were incubated in 2002. Mortality from initial incubation to hatch was 47,799 for a 92% survival rate and approximately 1,535,320 transferred to fry. Upwelling and vertical flow incubators supplied with well water were used to culture the kokanee and rainbow trout eyed-eggs.

RB:SPOK:01:H - (Spokane Trout Hatchery Brood Year 2001 Stock)

A total of 646,076 Spokane Trout Hatchery rainbow trout eggs were incubated in 2002. Mortality from initial incubation to hatch was 67,771 for a 90% survival rate and approximately 578,305 transferred to fry.

Table 1. Spokane Tribal Hatchery egg incubation results for 2002.

STOCK	DATE RECEIVED	NO. EGGS RECEIVED	HATCH DATE	LOSS @ HATCH	NO. TRANS. TO FRY	% SURVIVAL
KO:WHAL:01:H	12/10/2001	1,202,400	01/01/2002	44,936	1,157,464	96%
KO:WHAL:01:H	01/24/2001	472,320	02/08/2002	2863	377,856	80%
	Summary:	1,674,720		47,799	1,535,320	92%
RB:SPOK:01:H - triploids	12/11/2001	120,096	12/20/2001	14,221	105,875	88%
RB:SPOK:01:H – diploids	12/13/2001	525,980	12/22/2001	53,550	472,430	90%
	Summary:	646,076		67,771	578,305	90%

Objective: Fry, fingerling and yearling production.

Task: Production of kokanee and rainbow trout fry, fingerlings and yearlings.

Status: Completed

Table 2 at the end of this section lists results for each stock produced in 2002.

KO:WHAL:00:H - (Lake Whatcom Brood Year 2000 Stock)

A total of 299,996 Lake Whatcom kokanee yearlings totaling 16,671 pounds were produced in 2002. Total weight gain during this rearing cycle was 12,380 pounds. The total food fed was 13,720 pounds ensuing a final feed conversion 1.1 pounds fed per pound of growth for this lot. Diet consisted of Moore-Clark Nutra and Proactive feeds normally fed at 1% biomass. Mortality during this rearing cycle was 1%. The total lot was stocked in 2002.

KO:WHAL:01:H - (Lake Whatcom Brood Year 2001 Stock)

Production of this stock began with the initial rearing of 1,535,320 million fry produced from cultured eggs. Average size at feed training was 4,700 fish per pound. Total fish from this lot produced in 2002 was 1,268,352 fingerlings weighing 16,671 pounds. Total weight gain during this rearing cycle was 24,624 pounds. The total food fed was 35,538 pounds ensuing a final feed conversion 1.44 pounds fed per pound of growth for this lot. Diet consisted of Moore-Clark Nutra Starter fed at 2% biomass and Nutra Fry fed at 2 to 1% biomass. Mortality during this rearing cycle was 17%.

RB:SPOK:01:H - (Spokane Trout Hatchery Brood Year 2001 Stock)

Production of this stock began with the initial rearing of 578,305 fry produced from cultured eggs. Average size at feed training was 2,500 fish per pound. Total fish from this lot produced in 2002 was 624,220 fingerlings weighing 26,843 pounds. The actual number produced was greater than what was estimated at initial rearing probably as a result of over calculating egg losses. Total weight gain during this rearing cycle was 26,612 pounds. The total food fed was 36,702 pounds ensuing a final feed conversion 1.37 pounds fed per pound of growth for this lot. Diet consisted of Moore-Clark Nutra Starter fed at 2% biomass and Moore-Clark Trout AB fed at 2 to 1% biomass. Mortality during this rearing cycle was 13%.

Table 2. Spokane Tribal Hatchery fish production summary for 2002.

Stock	KO:WHAL:00:H	KO:WHAL:01:H	RB:SPOK:01:H
No. Fish	299,996	1,268,352	624,220
No. Pounds	29,056	24,952	26,843
Wt. Gain (lbs)	12,380	24,624	26,612
Pounds Fed	13,720	35,538	36,702
Feed Conversion	1.1	1.44	1.37
% Mortality	1%	17%	13%

Objective: Stock kokanee and rainbow trout into Lake Roosevelt and Banks Lake.

Task: Work collaboratively with Lake Roosevelt and Banks Lake artificial production projects to stock up to 1,000,000 kokanee yearlings, 1.4 million kokanee fry/fingerlings and 500,000 rainbow trout yearlings into the project area.

Status: Completed. A summary of fish stocked by Lake Roosevelt artificial production projects in 2002 is listed in Table 3. Tables 5 through 8 in Appendix A further summarize the total number stocked by project, location and brood origin.

Collectively, Lake Roosevelt and Banks Lake artificial production projects produced a total of 654,946 kokanee yearlings, 1,456,520 kokanee fingerlings and 501,662 rainbow trout yearlings for stocking into Lake Roosevelt and Banks Lake in 2002 (Table 3). Stock composition of 2002 releases consisted of 100 % Lake Whatcom kokanee and 80% diploid and 20% triploid/sterile Spokane Trout Hatchery rainbow trout origin. The Colville Confederated Tribes in conjunction with Lake Roosevelt net pen rearing operations stocked an additional 115,224 triploid/sterile rainbow trout purchased from Troutlodge through a 2001 Emergency Trout Restoration grant.

Table 3. Summary of total kokanee and rainbow trout stocked in 2002.

ID Code (Spc:Stk:BY:BO)	No. Stocked	Location
KO:WHAL:00:H – Yearlings	654,946	Lake Roosevelt
KO:WHAL:01:H – Fry/Fingerlings	1,456,520	Banks Lake
RB:SPOK:00:H – Yearlings	501,662	Lake Roosevelt
RB:TROU:00:H – Yearlings	115,224	Lake Roosevelt

Note: This table includes stocking information provided by the Ford Trout Hatchery, Sherman Creek Hatchery and Lake Roosevelt Net Pen Rearing Project.

Objective: Transfer kokanee and rainbow trout fingerlings to collaborative artificial production projects to meet 2003 stocking objectives.

Task: Inter-program transfer of kokanee and rainbow trout fingerlings for subsequent release into Lake Roosevelt in 2003.

Status: Completed. Summary of inter-program transfer data, by the Spokane Tribal Hatchery only, is listed in Table 4.

For subsequent stocking as yearlings in 2003, this project transferred 297,213 rainbow trout fingerlings to the Sherman Creek Hatchery and 322,707 rainbow trout and 366,660 kokanee fingerlings to Lake Roosevelt net pen rearing operations during 2002. Stock composition included 100 % Lake Whatcom kokanee and 80% diploid and 20% triploid/sterile Spokane Trout Hatchery rainbow trout origin.

Table 4. Summary of kokanee and rainbow trout inter-program fish transfers in 2002.

Dates	ID Code (Spc:Stk:BY:BO)	No. Transferred	Ave.Size (Fish/lb)	Total Lbs. Transferred	Program Transferred To
April 2002	KO:WHAL:00:H	233,156	12/lb	20,701 lbs	Sherman Creek Hatchery
July 2002	RB:SPOK:01:H	297,213	44/lb	6,727 lbs	Sherman Creek Hatchery
Sept-Oct 2002	RB:SPOK:01:H	322,707	16/lb	20,116 lbs	Lake Roosevelt Rainbow Trout Net Pen Rearing Project
Oct-Nov 2002	KO:WHAL:01:H	366,660	55/lb	6,842 lbs	Lake Roosevelt Kokanee Net Pen Rearing Project

Note: This table does not represent inter-program fish transfers by the Ford and Sherman Creek Hatcheries.

Objective: Carry over 500,000 kokanee fingerlings for stocking in 2003.

Task: Carry over kokanee to provide up to 500,000 kokanee yearlings for stocking in 2003.

Status: Completed. Total number of fingerlings carried over at the Spokane Tribal Hatchery for release as yearlings in 2003 includes 510,000 Lake Whatcom stock kokanee.

Objective: Marking kokanee prior to stocking to evaluate performance and differentiate from wild stocks.

Task: Mark kokanee fingerlings prior to release in Banks Lake.

Status: Completed. 100% of the 1,031,113 kokanee released were oxytetracycline marked including 115,596 marked by clipping left ventral fins.

Task: Adipose fin clipping and marking different Lake Roosevelt release groups with distinguishing fin clips.

Status: Completed. All kokanee released into Lake Roosevelt are marked with adipose fin clips as a distinguishing mark of a hatchery kokanee. Additional marks different 2002 Lake Roosevelt release groups received are identified in Appendix A, Tables A-1 through A-4.

Objective: New well water development and water conveyance system.

Task: Contract drilling company to develop additional production well at hatchery site.

Status: Completed. A contractor was hired to drill, develop, screen and test pump a 16 inch well on the hatchery grounds. Pump tests results indicated a the well capable of producing approximately 1,000 gallons per minute.

Task: Contract company to construct water conveyance and electrical system for new well.

Status: Not completed due to insufficient funds. This work will occur as funds become available.

DISCUSSION

Lake Roosevelt Fisheries Evaluation Program (LRFEP)

During the first 4 years (1991 to 1995) of hatchery stocking, the emphasis was for production and release of kokanee fry/fingerlings (age 0+). However, coded wire tag data and a study to chemically imprint and assess smoltification of hatchery produced kokanee indicated that kokanee released as residualized smolts (e.g. yearlings/age 1+) were captured in higher numbers than kokanee released as fry/fingerlings (age 0+) (Scholz et al. 1993, Tilson et al. 1994 and 1995). Additionally, entrainment losses and predation are thought to be a greater factor for kokanee released as fry as opposed to residualized smolts (Tilson et al. 1994 and 1995). As a result, the hatcheries have shifted from kokanee fry releases to residualized smolts. Stocking levels for Lake Roosevelt have been formulated by fishery managers based upon the theoretical number of fish that could be supported by the primary and secondary productivity of the reservoir (Jagiello 1984, Beckman et al. 1985, reviewed by Scholz et al. 1986). The current stocking level for Lake Roosevelt includes an annual target release goal of 1-million yearling (residualized smolt) kokanee and 500,000 yearling rainbow trout.

Most recent results of the LRFEP (Underwood et al. 1997, Tilson and Scholz 1997) indicate the impact of the hatchery and net pen programs have been beneficial to restoring and enhancing the rainbow trout fishery. Assessing the hatchery kokanee program has been difficult due to errors in creel survey data collection. Supplemental creel data collected from 1999 to 2002 through a volunteer angler diary program and annual fishing derbies indicates a contribution of hatchery kokanee to the creel ranging from 17% to 62% (McLellan et al. 2002).

Further data collected has determined that excessive predation and entrainment through Grand Coulee Dam severely limits kokanee survival in Lake Roosevelt. Draft results of a 2002 LRFEP investigation to evaluate current used stocks and stocking strategies are being reviewed to possibly implement recommended changes to aid in circumventing factors limiting hatchery kokanee performance.

In terms of economic value, the hatcheries and net pen projects are responsible for a thriving economic base surrounding the sport fishery that has been established. In 1985, six years before these projects began stocking fish, a U.S. Fish and Wildlife survey estimated the economic value of the Lake Roosevelt fishery at \$2.8 million (Beckman et al. 1985). Surveys that are more recent estimate an annual range from \$5.3 to \$12.8 million, owing in large part to these projects (Peone et al. 1989, Griffith and Scholz 1991, Thatcher et al. 1993). In 1996, the economic value of the fishery was estimated at \$7.6 million, which was a bad water year for Lake Roosevelt (Cichosz et al. 1996).

CONCLUSIONS AND RECOMMENDATIONS

To date, the hatchery rainbow trout program has been successful in sustaining a viable fishery. Pre and post artificial production creel surveys validate a restored rainbow trout fishery. Success of the hatchery kokanee program has been limited owing to a combination of high rates of entrainment, predation and precocity.

For 2003, the tentative plan is to continue the same production and release strategy while implementing measures that may be limiting the effectiveness of the kokanee program such as investigating the use of colder water during kokanee egg incubation to reduce precocity and implementing the use of stocks more compatible to the upper Columbia River native stocks. In terms of the rainbow trout program, the plan is to continue the use of triploid/sterile rainbow trout to overtake and/or reduce interactions with native rainbow trout and continue using Phalon Lake redband trout, indigenous to the upper Columbia River.

Ongoing fishery investigations by the Lake Roosevelt/Banks Lake Fisheries Evaluation Programs will provide necessary information to direct future artificial production plans including determining the most effective stocks and stocking strategies.

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APPENDIX A

2002

**LAKE ROOSEVELT AND BANKS LAKE
ARTIFICIAL PRODUCTION PROGRAM
STOCKING RECORDS**

Table 5. Summary of BY'00 Lake Whatcom kokanee yearlings stocked into Lake Roosevelt by artificial production projects in 2002.

KO:WHAL:00:H - (Lake Whatcom Brood Year 2000 Stock)					
Dates (Mo/Day/Yr)	Project	No. Stocked	Ave.Size (Fish/lb)	Location(s) Stocked	Comments/Marks
5/15/02	Spokane Tribal Hatchery	24,728	8/lb	Lake Roosevelt Ft. Spokane	Right Pectoral & Adipose Fins Clipped
5/16/02	Spokane Tribal Hatchery	25,112	8/lb	Lake Roosevelt Little Falls Dam	Left Pectoral & Adipose Fins Clipped
5/29/02	Spokane Tribal Hatchery	17,000	8/lb	Lake Roosevelt Colville River	Right Ventral, Left Pectoral & Adipose Fins Clipped
5/04-29/02	Lake Roosevelt Kokanee Net Pen Rearing Project	247,484	18/lb	Lake Roosevelt Colville River	Adipose Fin Clipped
5/18/02	Lake Roosevelt Kokanee Net Pen Rearing Project	109,584	16/lb	Lake Roosevelt Seven Bays	Adipose Fin Clipped
6/26/02	Sherman Creek Hatchery	231,038	9.5//b	Lake Roosevelt Sherman Creek	Adipose Fin Clipped
	TOTAL	654,946			

Table 6. Summary of BY'00 Lake Whatcom kokanee spring fry and fall fingerlings stocked into Banks Lake by artificial production projects in 2002.

KO:WHAL:01:H - (Lake Whatcom Brood Year 2001 Stock)					
Dates (Mo/Day/Yr)	Project	No. Stocked	Ave.Size (Fish/lb)	Location(s) Stocked	Comments/Marks
5/17/02	Ford Trout Hatchery	401,660	516/lb	Banks Lake Northrup Creek	Spring Fry - OTC Marked
5/30-31/02	Spokane Tribal Hatchery	342,000	450/lb	Banks Lake Northrup Creek	Spring Fry - OTC Marked
6/25/02	Ford Trout Hatchery	425,407	244//lb	Banks Lake Northrup Creek	Spring Fry - OTC Marked
10/10/02	Spokane Tribal Hatchery	50,050	55/lb	Banks Lake Northrup Creek	Fall Fingerlings -OTC Marked
10/07-10/02	Ford Trout Hatchery	523,467	68/lb	Banks Lake Northrup Creek	Fall Fingerlings - OTC Marked
10/07-10/02	Ford Trout Hatchery	115,596	66/lb	Banks Lake Northrup Creek	Fall Fingerlings - OTC Marked & Left Ventral Fin Clipped
	TOTAL	1,456,520			

Table 7. Summary of BY'00 McCloud River rainbow trout yearlings stocked into Lake Roosevelt by artificial production projects in 2002.

RB:SPOK:00:H - (Spokane Trout Hatchery/McCloud River Brood Year 2000 Stock)					
Dates (Mo/Day/Yr)	Project	No. Stocked	Ave.Size (Fish/lb)	Location(s) Stocked	Comments/Marks
5/15-29/02	Lake Roosevelt Rainbow Trout Net Pen Rearing Project	70,006	6.6/lb	Lake Roosevelt Kettle Falls	Diploids & Triploids 10,000 EWU Orange Floy Tag
5/23/02	Lake Roosevelt Rainbow Trout Net Pen Rearing Project	39,727	5.3/lb	Lake Roosevelt Hall Creek	Diploids
6/06/02	Lake Roosevelt Rainbow Trout Net Pen Rearing Project	59,104	5/lb	Lake Roosevelt Hunters	Diploids
6/11/02	Lake Roosevelt Rainbow Trout Net Pen Rearing Project	49,869	5/lb	Lake Roosevelt Two Rivers	Diploids & Triploids
5/20/02	Lake Roosevelt Rainbow Trout Net Pen Rearing Project	110,529	6/lb	Lake Roosevelt Seven Bays	Diploids & Triploids
5/22/02	Lake Roosevelt Rainbow Trout Net Pen Rearing Project	147,979	5.6/lb	Lake Roosevelt Lincoln	Diploids
5/22/02	Lake Roosevelt Rainbow Trout Net Pen Rearing Project	24,448	3/lb	Lake Roosevelt Keller Ferry	Triploids
	TOTAL	501,662			

Table 8. Summary of BY'00 Troutlodge rainbow trout yearlings stocked into Lake Roosevelt by artificial production projects in 2001 & 2002.

RB:TROUT:00:H – (Troutlodge Brood Year 2000 Stock)					
Dates (Mo/Day/Yr)	Project	No. Stocked	Ave.Size (Fish/lb)	Location(s) Stocked	Comments/Marks
11/13/01 6/4/02	CCT Emergency RBT Restoration	6,438	0.41/lb	Lake Roosevelt Kettle Falls	Triploids
11/20/01 6/19/02	CCT Emergency RBT Restoration	3,405	0.41/lb	Lake Roosevelt Two Rivers	Triploids
11/13/01 6/4/02	CCT Emergency RBT Restoration	4,773	0.29/lb	Lake Roosevelt Keller Ferry	Triploids
6/4-5/02	CCT Emergency RBT Restoration	1,864	0.29/lb	Lake Roosevelt Inchelium Ferry	Triploids
6/6-18/02	CCT Emergency RBT Restoration	932	0.29/lb	Lake Roosevelt Snag Cove	Triploids
6/7/02	CCT Emergency RBT Restoration	933	0.29/lb	Lake Roosevelt French Rocks	Triploids
6/7/02	CCT Emergency RBT Restoration	402	0.29/lb	Lake Roosevelt Little Falls Dam	Triploids
6/18/02	CCT Emergency RBT Restoration	821	0.29/lb	Lake Roosevelt Northport	Triploids
6/18-19/02	CCT Emergency RBT Restoration	815	0.29/lb	Lake Roosevelt China Bend	Triploids
6/7/02	CCT Emergency RBT Restoration	32,250	9.1/lb	Lake Roosevelt Keller Ferry	Triploids
9/12-30/02	CCT Emergency RBT Restoration	45,714	3.4/lb	Lake Roosevelt Kettle Falls	Triploids 10,000 w/EWU Grey Floy Tags
6/11/02	CCT Emergency RBT Restoration	16,877	9.1/lb	Lake Roosevelt Two Rivers	Triploids
	TOTAL	115,224			